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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,872	04/28/2005	Won-Hyun Jung	0630-2306PUS1	2204
2292 7590 03/14/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER PRESTON, ERIK D	
			ART UNIT	PAPER NUMBER
			2834	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/14/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/14/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary**

Application No.

10/532,872

Applicant(s)

JUNG ET AL.

Examiner

Erik D. Preston

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 and 6 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 & 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Do et al. (WO 2002/087060, supplied by applicant) in view of Miyamoto (JP 09-129470, supplied by applicant) in view of Gardos et al. (US 4376710, previously cited).

With respect to claim 1, Do teaches a winding coil assembly of a reciprocating motor comprising: an outer stator (Fig. 1, #10); and inner stator (Fig. 1, #11) arranged at an inner circumference surface of the outer stator with a certain air gap; a magnet (Fig. 1, #42) linearly and movably arranged between the outer stator and the inner stator; and a winding coil mounted on the outer stator, the winding coil having a ring shape and including a plurality of turns of a conductive wire, but it does not teach a self-lubricating polyamide layer surrounding the conductive wire; and a molding material surrounding the self-lubricating polyamide layer such that the conductive wire, the self-lubricating polyamide layer and the moulding material together are in an integral structure, the self-lubricating polyamide layer being located between the conductive wire and the moulding material.

However, Miyamoto teaches a coil including a polyamide layer (Fig. 5, #13c) surrounding a conductive wire (Fig. 5, #13a); and a molding material (Fig. 5, #13d) surrounding the polyamide layer such that the conductive wire, the self-lubricating polyamide layer and the moulding material together are in an integral structure, the self-

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lubricating polyamide layer being located between the conductive wire and the moulding material; and Gardos teaches that self-lubricating polyamides were well known at the time of the invention (Col. 1, Lines 35-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to: (1) modify the coil of Do in view of the Molding material as taught by Miyamoto because it provides a means for replacing the bobbin of a ring shaped coil thereby aiding in the miniaturization of the coil (Miyamoto, Paragraph 17); and (2) form the Polyamide layer of Miyamoto from a self-lubricating polyamide since it has been held that one of ordinary skill in the art at the time the invention would choose a suitable and desirable material, because it would be within the general skill of a worker in the art to select a material on the basis of its suitability for the intended use as a matter of obvious design choice (In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)).

With respect to claim 2, Do in view of Miyamoto in view of Gardos teaches the motor of claim 1, and Miyamoto teaches that the winding coil further includes a polyester imide layer (Fig. 5, #13b) in contact with a circumferential surface of the conductive wire, the self-lubricating polyamide layer being in contact with a circumferential surface of the polyester imide layer (as seen in Fig. 5), the molding material being in contact with a circumferential surface of the self-lubricating polyamide layer.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Do et al. (WO 2002/087060, supplied by applicant) in view of Miyamoto (JP 09-129470, supplied by applicant) in view of Gardos et al. (US 4376710, previously cited) further in view of Sattler (US 3695929). Do in view of Miyamoto in view of Gardos teaches the motor of claim 1, and Miyamoto teaches a first (polyimide) layer in contact with a circumferential surface of the conductive wire, the self-lubricating polyamide layer being in contact with a circumferential surface of the first layer, and the moulding material being in contact with a circumferential surface of the self-lubricating polyamide layer (as seen in Fig. 5), but it does not explicitly teach the first layer being a polyamide imide layer.

However, Sattler teaches that polyimide and polyamide imide may be used interchangeably (as seen in Fig. 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the polyimide layer of Miyamoto in view of a polyamide imide layer as is taught by Sattler because they are well known equivalents (Sattler, Fig. 3).

It also would have been obvious to use polyamide imide for the first layer of Miyamoto since it has been held that one of ordinary skill in the art at the time the invention would choose a suitable and desirable material, because it would be within the general skill of a worker in the art to select a material on the basis of its suitability for the intended use as a matter of obvious design choice (In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)).

***Allowable Subject Matter***

Claims 5 & 6 are allowed.

Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 4 & 5, while prior art does teach some of the limitations included in the claims, it does not teach the combination comprising the polyester imide layer, polyamide imide layer, self-lubricating polyamide layer and molding material.

Claim 6 is dependent upon claim 5.

***Response to Arguments***

Applicant's arguments filed 12/14/2006 have been fully considered but they are not persuasive.

In response to the applicant's argument that the self-lubricating "polymide" of Gardo is not a teaching of a self-lubrication polyamide, it is noted that the material "VespeI" which Gardo refers to as a self-lubricating "polymide" is known in the art to be a self-lubricating polyamide (Scaringe et al. (US 5582020): Col. 14, Lines 45-48).

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2307588, US 2626223, US 4037312, US 5582020, US 6700234 & US 6774511

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
02/27/2007  
BURTON S. MULLINS  
PRIMARY EXAMINER



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*Accepted*

FIG. 1  
Related Art

